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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/591,500

05/25/2007

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07481.0053

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07/27/2010

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EXAMINER

VASISTH, VISHAL V

ART UNIT

PAPER NUMBER

1797

MAIL DATE

DELIVERY MODE

07/27/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

DETAILED ACTION

Response to Amendment

1. Applicants' response filed 5/13/2010 amended independent claim 1 and cancelled claim 3 and added new claims 4-12. Applicants' amendments overcome the 35 USC 103 rejection over Cohen in regards to claim 1 set forth in the office action mailed on 1/8/2009, therefore this rejection is withdrawn. Applicants' amendments do not overcome the 35 USC 103 rejection over Cohen in view of Shimomura. However, in response to the amendments, Shimomura is now the primary reference and Cohen is now the secondary reference because of the addition of the additives into claim 1. New grounds of rejection necessitated by the amendments are set forth below.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 1 and 4-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cohen et al., US Patent No. 6,736,991 (hereinafter referred to as Cohen) in view of Shimomura et al, US Patent No. 6,231,782 (hereinafter referred to as Shimomura).

Cohen discloses a refrigeration lubricant comprising up to 99 wt% of a naphthenic mineral oil (Col. 3/L. 37-40), a hydrofluorocarbon refrigerant and a nonionic surfactant. The naphthenic mineral oils are made by contacting them with sulfuric acid and filtering with either clay or bauxite, which is a form of hydrotreatment and/or refining as evidenced below by Shimomura, to reduce sulfur and nitrogen-containing heterocyclic compounds and improve low temperature properties. The sulfur and nitrogen compounds have been reduced such that the total sulfur and nitrogen is at low levels 0.05 wt% or less and the %C_A of the naphthenic mineral oil is 14. Cohen also discloses that the kinematic viscosity of the mineral oils range from 13-100 cSt at 40°C (Col. 3/L. 5-15/Table 1).

Cohen further discloses the presence of additional additives to formulate the finished refrigerating composition. Such additives include antiwear compounds including tri-aryl phosphates and (phosphorus-based additive) (Col. 7/L. 3-4) and additional anti-wear additives and sulfur-containing extreme pressure agents (Col. 7/L. 1-11).

Cohen does not explicitly disclose the composition comprising a phosphorothionate additive or a specific concentration for the phosphorus additive.

Shimomura discloses a refrigerator oil composition comprising, a major amount of a base oil preferably a mineral oil, 1.0 wt% of a phosphorus compound such as

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tricresyl phosphate (Col. 16/L. 4 and Table 3) and at least 0.1 wt% of a sulfur compound such as a phosphorothionate (Col. 12/L. 7-47).

Shimomura further discloses that the mineral oil is obtained by refining means such as solvent deasphalting, solvent extraction, hydrogenolysis, solvent dewaxing, catalyst dewaxing, hydrofinishing, sulfuric acid washing and clay treatment to treat lubricant oil fractions obtained from the atmospheric distillation and vacuum distillation (as recited in claims 4-5) (Col. 2/L. 56-65).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the phosphorothionate additive of Shimomura in the composition of Cohen in order to improve the wear resistance and load capacity of the composition (Col. 12/L. 7-8 of Shimomura) and the specific concentration of the phosphorus additive because it would have been obvious to try with a reasonable expectation of success based on the disclosure of Cohen.

Claim Rejections - 35 USC § 103

5. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cohen.

Cohen discloses a refrigeration lubricant comprising a naphthenic mineral oil, a hydrofluorocarbon refrigerant and a nonionic surfactant. The naphthenic mineral oils are made by contacting them with sulfuric acid and filtering with either clay or bauxite to reduce sulfur and nitrogen-containing heterocyclic compounds and improve low temperature properties. The sulfur and nitrogen compounds have been reduced such that the total sulfur and nitrogen is at low levels 0.05 wt% or less and the %C_A of the

naphthenic mineral oil is 14. Cohen further discloses that the kinematic viscosity of the mineral oils range from 13-100 cSt at 40°C (Col. 3/L. 5-15/Table 1).

Response to Arguments

6. Applicants' arguments filed on 5/13/2010 with respect to claims 1 and 4-12 have been considered and are not persuasive.

Applicants arguments regarding Cohen in terms of claim 1 are moot in light of the rejection being withdrawn as discussed above. These arguments are also not persuasive. Applicants point to column 7, lines 7-11, wherein Cohen discloses that acid phosphate esters are not preferred because they are "too labile and thermal stability is insufficient." Applicants do not, however, consider column 7, lines 3-5, wherein Cohen discloses that "alkyl-aryl or tri-aryl phosphates" are preferred "because of their good thermal stability." These compounds read on the list of phosphorus compounds recited in instant claim 1 and therefore Cohen does not teach away from the instantly recited components of claim 1.

Applicants also allege unexpected results and provide data in the specification that allegedly supports the applicants' position along with a Declaration signed on 11/13/2009 by Yuji Shimomura. However, the claims are still not commensurate in scope with the claims. Applicants cite a portion of MPEP 2145 to buttress their argument but applicants have not considered the entire section in MPEP2145 for determination of unexpected results and particularly whether or not the claims are commensurate in scope.

“A showing of unexpected results for a single member of a claimed subgenus, or a narrow portion of a claimed range would be sufficient to rebut a prima facie case of obviousness if a skilled artisan “could ascertain a trend in the exemplified data that would allow him to reasonably extend the probative value thereof” MPEP 2145.

In the instant case, the example oils 1-2 and 6 on pages 48-50 of the instant specification disclose a mineral oil with an aromatic ring structure in the mineral oil of 8-12 which is also narrower than the range recited in instant claim 1. No criticality of the range recited in instant claim 1 has been shown and no trends can be ascertained from the data provided. The same is true for the sulfur content of the inventive oils 1, 2 and 6 wherein no criticality of the broader range has been shown by applicants. Also, the base oils of the specification are all limited by kinematic viscosities which are not present in independent claim 1 and are very broad with no trend analysis in independent claim 8.

Furthermore, from table 2 of page 53 of the instant specification it is evident that the base oil is present within a narrow concentration range which is not recited in instant claim 1. In addition the additives present in the example oils as very specific phosphorus compounds which are broadly recited in independent claim 1 and not present in independent claim 8 and their concentrations in the dependent claims are much broader than the example oils from the specification with no trends or criticality shown for the concentrations.

Unexpected results have not been demonstrated also because example oils 4-16 merely demonstrate that the higher concentration of additives the lower the coefficient

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of friction. For example, example oil 13 – has the B1 and C1 additives in the highest concentration and has the lowest coefficient of friction. The same is true for example oil 14 especially when compared to example oils 15 and 16. It is not unexpected to get better results when there is a higher concentration of additives. Also, none of the additional additives, namely B1 and C1-5 from the Tables 2-3 of the instant specification, are reflected in instant claim 1. Finally, in order for applicants to demonstrate unexpected results there must be a comparison to the closest prior art. Applicants' Declaration merely showed that Shimomura had a sulfur content outside the range and if the sulfur content were adjusted to be within the range that the aromatics content would then be outside the range of the instant claims. There were other base oils in the broad disclosure of Shimomura that would read on the instant claims.

Applicants argue that base oil 4 of Shimomura discloses a sulfur content outside the range as recited in instant claim 1 and the Declaration signed by Yuji Shimomura on 11/13/2009 further showed that if the sulfur content was decreased to be within the claimed range that the content of aromatics would also decrease and possibly be outside of the range recited in claim 1. This argument is persuasive and therefore the 35 USC 103 rejection over Shimomura is withdrawn. In the instant rejection Shimomura is not introduced for its disclosure of base oils but instead for its disclosure of additives in refrigeration oil compositions.

Applicants also argue that Cohen does not teach the sulfur content in the range as recited in amended claim 1. This argument is also not persuasive. Cohen in column 3 clearly states that the mineral oils are filtered to reduce sulfur and nitrogen contents

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and that the respective concentrations of both sulfur and nitrogen have been reduced to levels of 0.05% (500 ppm) or lower which clearly overlaps and encompasses the range as recited in claim 1. The full disclosure must be taken into account and not simply the example oils from Cohen. “In the case where the claimed ranges “overlap or lie inside ranges disclosed by the prior art” a prima facie case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976).”

Conclusion

6. Applicants’ amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicants are reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to VISHAL VASISTH whose telephone number is (571)270-3716. The examiner can normally be reached on M-R 8:30a-5:30p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571)272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

VVV

/Ellen M McAvoy/
Primary Examiner, Art Unit 1797